

Notice of Allowability

Application No.

09/478,731

Examiner

Herng-der Day

Applicant(s)

WAMPLER, CHARLES W.

Art Unit

2128

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Response received 5/18/04 and 7/22/04.
2. ☒ The allowed claim(s) is/are 1-9.
3. ☒ The drawings filed on 6/12/03 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

1. This communication is in response to Applicant's Response to Office Action dated March 30, 2004, mailed May 14, 2004, received by PTO May 19, 2004, and RCE faxed July 22, 2004.

1-1. Claim 1 has been amended. Claims 1-9 are pending.

1-2. Claims 1-9 have been examined and allowed.

Reasons for Allowance

2. The following is an Examiner's statement of reasons for allowance:

2-1. The closest prior art of record discloses:

(1) A custom-made manufacturing system (Matsuzaki et al., U.S. Patent 5,357,439);

(2) A method for motion planning and control for systems with multiple mobile objects (Spector, U.S. Patent 6,004,016); and

(3) A CAD system for automatically constructing datum reference frame (DFR) for machine part (Tandler, U.S. Patent No. 5,949,693).

2-2. Independent claim 1 is directed at a method of arranging at least one workpiece and one or more workpiece processing devices in a manufacturing cell using a programmable computer with a database. Although optimizing workcell layout using software is obvious in the relevant art, this independent claim identifies the distinct combination of features of "entering in said database a tree structure of program steps, the root node of said tree containing a value for each joint of each device in said manufacturing cell at some initial time, and each child node of a

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particular node in said tree representing an alternative motion in terms of a list of devices which will move should that alternative be chosen, and containing for each joint of each such moving device a value to be attained at the completion of the motion”, “formulating a total potential function as a weighted sum over all program steps of the contributions from all attracting pairs at a step, all repelling pairs at a step, and the limits of those joints whose values are to be adjusted at the step”, and “subjecting the total potential function to a mathematical optimization analysis to find the prospective locations of workpieces and base links and the joint values to minimize the total potential function, thereby achieving an arrangement of each said workpiece and device in said cell in which said attracting pairs of coordinate systems are coincident, said repelling pairs are separated, and said joint values all lie within said limits of motion”, which has been argued at page 6-11 of Applicant’s Response mailed May 14, 2004 and the potential function has been specifically taught by Applicant at pages 11-13 in the specification. Since the distinct combination of features has not been uncovered in a single teaching and a modification of prior art references would not be obvious to one of ordinary skill in the art to yield these limitations in the context of the claim, claim 1 is deemed allowable.

Dependent claims 2-9 are allowable as they depend on allowed independent claim 1.

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

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Conclusion

4. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Herng-der Day whose telephone number is (703) 305-5269. The Examiner can normally be reached on 9:00 - 17:30.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Jean Homere can be reached on (703) 308-6647. The fax phone numbers for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Herng-der Day *H.D.*
September 30, 2004


JEAN F. HOMERE
PRIMARY EXAMINER